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Original Research Article

The Relationship between Knowledge of Clean and Healthy Living Behavior and the Nutritional Status of Stunted Toddlers in West Kupang Regency in 2023

Dwie Putri Virgowati Kurnian[1*], Christina Olly Lada[2], Elisabeth L. S. Setianingrum[3], Conrad Liab Henricson Folamauk[4]

[1]Faculty of Medicine and Veterinary Medicine, Universitas Nusa Cendana, RMW5+P89, Jl. Matani Raya, Lasiana, Kec. Klp. Lima, Kota Kupang, Nusa Tenggara Tim., Indonesia
[2]Department of Nutrition, Faculty of Medicine and Veterinary Medicine, Universitas Nusa Cendana, RMW5+P89, Jl. Matani Raya, Lasiana, Kec. Klp. Lima, Kota Kupang, Nusa Tenggara Tim., Indonesia
[3]Departement of Clinical Pathology, Faculty of Medicine and Veterinary Medicine, Universitas Nusa Cendana, RMW5+P89, Jl. Matani Raya, Lasiana, Kec. Klp. Lima, Kota Kupang, Nusa Tenggara Tim., Indonesia
[4]Department of Tropical Medicine, Faculty of Medicine and Veterinary Medicine, Universitas Nusa Cendana, RMW5+P89, Jl. Matani Raya, Lasiana, Kec. Klp. Lima, Kota Kupang, Nusa Tenggara Tim., Indonesia

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Abstract: ***Background*:** Stunting in toddlers is still a serious health problem in Indonesia. Clean and Healthy Living Behavior (PHBS) is one of the factors that influence the nutritional status of toddlers. Research Objective: To understand the relationship between knowledge of clean and healthy living behavior and the nutritional status of stunted toddlers in West Kupang Regency. ***Research Method*:** Using an analytical research design with a chi-square design, this study was conducted by collecting secondary data from the Community Care Network Foundation. The sampling was done using a cluster random sampling technique with a total of 100 respondents. The research was analyzed bivariately using the risk estimate test. ***Results:*** The majority of toddler subjects are male. The toddler subjects range in age from 0 to 4 years. The parents of the subjects have educational statuses of elementary school (16%), junior high school (19%), high school/vocational school (49%), and university (16%). The mothers of the subjects have occupations as housewives (85%), civil servants (4%), farmers (4%), and private employees (7%). Respondents with poor knowledge-behavior of clean and healthy living, based on exclusive breastfeeding, account for 19%, poor routine weighing at integrated health posts (Posyandu) 4%, poor childbirth assistance 44%, poor handwashing habits 37%, poor use of clean water 52%, and poor toilet usage 2%. Malnutrition status in toddlers is as follows: 62% underweight (Weight-for-Age), 23% stunted (Weight-for-Height), and 28% underweight (Body Mass Index-for-Age). Bivariate analysis results between knowledge-behavior of clean and healthy living show a significant relationship between exclusive breastfeeding and the use of clean water with the nutritional status of toddlers. ***Conclusion*:** There is a significant relationship between exclusive breastfeeding and the use of clean water with the nutritional status of toddlers.

Keywords: Knowledge - Clean and Healthy Living Behavior, Stunting Nutritional Status in Toddlers.

INTRODUCTION

Based on data from the World Health Organization (WHO 2020), the incidence of stunting in the world has reached 22% or 149.2 million children under five. In 2022, the Indonesian Ministry of Health's Health Development Policy Agency stated that the prevalence of stunting among children under five in Indonesia reached 21.6%, which was a decrease compared to 2018 [2].

Data from the Indonesian Nutrition Status Survey (SSGI) in 2022 with prediction calculations using the small area estimation (SAE) method by the Central

***Corresponding Author:** Dwie Putri Virgowati Kurnian
Faculty of Medicine and Veterinary Medicine, Universitas Nusa Cendana, RMW5+P89, Jl. Matani Raya, Lasiana, Kec. Klp. Lima, Kota Kupang, Nusa Tenggara Tim., Indonesia

Bureau of Statistics (BPS) in East Nusa Tenggara Province, shows that the prevalence of stunted toddler nutritional status has decreased from the previous year, with a figure of 35.3%. However, this figure still places East Nusa Tenggara Province in first place as the province with the largest prevalence of stunted toddlers in Indonesia [3]. Kupang Regency, as part of East Nusa Tenggara province, has a prevalence of stunted toddlers reaching 36.2% according to SSGI in 2022. This data shows that there are quite serious nutritional problems among toddlers in Kupang Regency [3]. According to data from the official Kupang Regency website regarding 2023 stunting information, several villages that show quite high stunting data for toddlers are Tesabela, Bolok, Sumlili and Lifuleo villages. This of course causes the need for appropriate intervention efforts to prevent and overcome this problem [3].

The problem of nutritional status of children under five in Indonesia is very complex and influenced by many factors, in line with what United statedNations Children's Fund (UNICEF) states that nutritional status is influenced by direct, indirect and fundamental causes. Several factors that influence the nutritional status of toddlers include access to nutritious food, poor sanitation, lack of knowledge about nutrition, and socio-economic factors. According to research by Miller *et al*., (2013), nutritional intake for toddlers aged 6-60 months on land in Timor is also determined by weather variations which influence seasonal agricultural activities on plant foods such as rice, corn and cassava leaves. Anthropometric measurements taken tend to improve in November, which possibly reflects an increase in food supplies in the previous month and the rainy season before the harvest season is the time when the largest nutritional deficit occurs [5].

Low sanitation and environmental cleanliness can trigger digestive tract disorders, which divert energy for growth to the body's fight against infection. A study found that the more often a child suffers from diarrhea, the greater the threatstunting for him. When children are sick, their appetite usually decreases, resulting in lower nutritional intake. Therefore, the growth of brain cells, which should be very rapid in a child's first two years, becomes stunted. As a result, the child is at risk of suffering from stunting, which results in disrupted mental and physical growth, so that his potential cannot develop to its full potential. Malnutrition is also still a big problem for children in Indonesia where nutritional status for rural areas is very dependent on local agriculture and can fluctuate in relation to harvest time as well.

Knowledge of Clean and Healthy Living Behavior is an effort to improve public health, especially in terms of environmental health. Clean and Healthy Living Behavior and Knowledge includes behavior that relatewith sanitation, cleanliness and food health. Knowledge of Clean and Healthy Living Behavior can also help prevent disease and other health problems, including malnutrition in toddlers. A number of previous studies have revealed that clean and healthy living behavior can influence the nutritional status of toddlers [6].

Based on research conducted byDhefiana found a significant influence between knowledge of clean and healthy living behavior and the nutritional status of toddlers [2]. In contrast to this, based on research conducted by Pertiwi in 2019, it was found that there was no relationship between PHBS knowledge and nutritional status in children [7].

Based on the descriptionabove, the author is interested in conducting research that analyzes the relationship between Knowledge of Clean and Healthy Living Behavior (PHBS) and the Nutritional Status of Stunting Toddlers. Therefore, this research is entitled "The Relationship between Knowledge - Clean and Healthy Living Behavior (PHBS) with the Nutritional Status of Stunting Toddlers in West Kupang Regency".

RESEARCH METHODS

This research is an analytical type research with a cross sectional design which aims to determine the relationship between knowledge - clean and healthy living behavior and the nutritional status of stunted toddlers in West Kupang Regency. This research was conducted by collecting secondary data at the Community Care Network Foundation (Jaringan Peduli Masyarakat) work together with Danone Indonesia.

The location of this research is in Kupang Regency in the Village Tesabela, Bolok, Sumlili, and Lifuleo, West Kupang Regency, East Nusa Tenggara with a total of 100 respondents who met the inclusion and exclusion criteria. The sampling technique in this research used a cluster random sampling technique.

This research will take place from August to September 2023. The analysis used in this research is analysisunivariate, bivariate, and multivariate. Univariate analysis aims to determine the distribution of knowledge, clean and healthy living behavior and nutritional status of stunted toddlers. Bivariate analysis aims to determine the relationship between knowledge, clean and healthy living behavior and the nutritional status of stunted toddlers.

RESULTS

Respondent characteristics

Table 1: Subject characteristics based on age and gender

Subject Characteristics	Nominal	Percent (%)
Age		
0 Years	4	4
1 year	32	32
2 years	26	26
3 years	25	25
4 years	13	13
Toddler Gender		
Man	57	57
Woman	43	43

On Table 1 shows that the largest number of toddler subjects was 1 year old with a total of 32 people, while the largest number of toddlers was male with a total of 57 people.

Table 2: Frequency of Parental Subject Education Level

Subject Characteristics	Nominal	Percent (%)
Parental Education		
Elementary school	16	16
Junior High School	19	19
Senior High School	49	49
College	16	16

Results from table 2 shows that the characteristics of the parent subjects in their last educational status, namely SMA/SMK, get a percentage of 49%.

Table 3: Occupation Frequency of Parental Subjects

Subject Characteristics	Nominal	Percent (%)
Mother's Job		
Housewife	85	85
Civil servants	4	4
Farmer	4	4
Private	7	7

The results from the table show that the characteristics of the subject's parents work as housewives as much as 85%.

Univariate Analysis

Table 4: Frequency Distribution of Knowledge Characteristics of Clean and Healthy Living Behavior in Bolok, Tesabela, Sumlili, and Lifuleo Villages

Variable	Frequency	Percentage (%)
Exclusive breastfeeding		
Good	81	81
Bad	19	19
Regular weighing		
Good	96	96
Bad	4	4
Childbirth assistant		
Good	56	56
Bad	44	44
Washing habits hand		
Good	63	63
Bad	37	37

Variable	Frequency	Percentage (%)
Use of clean water		
Good	48	48
Bad	52	52
Use of latrines		
Good	98	98
Bad	2	2

Table 5: Frequency Distribution of Toddlers with Stunting Conditions inBolok Village, Sumlili Village, Tesabela Village and Lifuleo Village

Variable	Mark	Percentage (%)
BW/AGE		
Not enough	62	62
Normal	38	38
BW/BL		
Malnutrition	23	23
Good Nutrition	77	77
BMI/AGE		
Malnutrition	28	28
Good Nutrition	72	72

Table 6: Frequency Distribution of Characteristics and Toddlers with Stunting Conditions in Bolok Village, Tesabela Village, Sumlili Village, and Lifuleo Village

Variable	BW/AGE		BMI/AGE		BW/BL	
	Not enough	Normal	Good Nutrition	Malnutrition	Good Nutrition	Malnutrition
Exclusive breastfeeding						
Bad	8	11	8	11	5	14
Good	54	27	44	37	18	63
Regular Weighing						
Bad	3	1	4	0	0	4
Good	59	37	48	48	23	73
Helper Labor						
Bad	24	20	19	25	9	35
Good	38	18	33	23	14	42
Habit Washing hands						
Bad	23	14	19	18	10	27
Good	39	24	33	30	13	50
Use of Clean Water						
Bad	27	25	24	28	13	39
Good	35	13	28	20	10	38
Latrine Use						
Bad	1	1	1	1	0	2
Good	61	37	51	47	23	73

Table 4 shows the results that birth attendants had poor knowledge of clean and healthy living habits, 37 people had poor hand washing habits, and 52 people had poor use of clean water.

In table 5, the results are obtained in the form of nutritional status index BW/U status is low, with a percentage of 62%, while for normal body weight there is 38%, the nutritional status based on the BW/BL index is mostly good nutritional status with a percentage of 77% and low nutritional status with a percentage of 23%, which is obtained from nutritional status. Based on BMI/AGE, the majority have good nutritional status with a percentage of 72% and 28% are malnourished. These results show that on average toddlers in the 4 villages have good nutritional status but the average BW/U is still low or not in line with children their age.

In table 6, it was found that poor birth attendants resulted in 24 children under five, based on the BW/AGE nutritional status index, 19 people based on the BMI/AGE nutritional index with deficient nutritional status, 9 people based on the BW/AGE nutritional index with deficient nutritional status. The results also showed that poor hand washing habits resulted in 23 children under five having a nutritional status index of BW/AGE, 19 people based on the BMI/AGE nutritional index, and 19 people based on the nutritional index of BW/U with

less nutritional status 10 people. The results of poor use of clean water resulted in 27 children under five with a nutritional status index of BW/AGE, 24 people with BMI/AGE with poor nutritional status, and 13 BW/AGE with low nutritional status.

Bivariate Analysis

Analysis resultsusing the SPSS Statistics 25 application with the chi-square test, the results showed that poor exclusive breastfeeding and poor use of clean water were significantly related to the nutritional status of children under five with a p value = 0.047 and 0.031 respectively.

Multivariate Analysis

Multivariate analysis was carried out using the logistic regression test in the SPSS Statistics 25 application. This analysis showed that the factors that had the most influence on the nutritional status of BW/AGE were exclusive breastfeeding and the use of clean water. However, based on the results of the same analysis, there is no factor that has the most influence on the nutritional status of BW/BL. Meanwhile, the nutritional status of BMI/AGE that has an influence is routine weighing.

DISCUSSION

Nutritional Status of Toddlers

The results of this research show that nutritional problems in Indonesia are still very high, even though the target is to reduce nutritional problems such as stunting by up to 14% by 2024. In this study, the results of observations of 100 samples of toddlers showed differences in the numbers between toddlers with good nutritional status and toddlers with poor nutritional status. Based on the standard results of calculating normal nutritional status using the World Health Organization (WHO) curve -2SD to +1SD, the majority of samples showed good nutritional status.

Results Research shows that 62% of toddlers are categorized as underweight, but 23% and 28% can be categorized using BW/BL and BMI/AGE as undernourished. This is an important thing to pay attention to regarding the handling of this nutritional problem. Age analysis shows that the number of toddlers in the age range 0 years to 4 years 9 months is relatively balanced, with the highest percentage being 1 year old. Children under five who are growing need more nutritional intake than adults.

Knowledge – Clean and Healthy Living Behavior

In this study, one of the factors that contributes to the prevalence of stunting in children is young mothers (<22 years) because at this stage mothers are still in the process of growing and need adequate nutritional intake. However, pregnancy at a young age can cause problems in the distribution of nutrients between mother and fetus. Apart from that, pregnancy at a young age also has the potential to cause complications during childbirth, such as anemia, while the number of mothers who are older (>25 years) is relatively small, this is different from mothers who become pregnant at a young age who are more mature, where physically they ready to conceive and give birth. In this way, there is no struggle for nutrition and the potential for birth complications can be minimized.

The mother's education level also has a significant influence on their understanding of the importance of children's nutrition and health. This was explained through research conducted by Ramadhina *et al*., (2020) at SDN Campurejo 1 Bojonegoro which showed a significant relationship between the level of education and knowledge of mothers on the nutritional status of toddlers [8]. Based on the results of this research, it was found that around 49 mothers of toddlers in this study had a high school educational background and 85 mothers of toddlers worked as housewives.

In this research it was found that the majority of respondents were housewives with the assumption that they should have more time to pay attention to their children, but it turns out that many children still experience stunting. This can be caused by a lack of knowledge or education received by these mothers on how to apply this knowledge correctly. For example, even though it is known that breast milk has good benefits for children, knowledge about how to breastfeed well, how much breast milk to give, and when breast milk should be given, does not seem to be clearly reflected in the knowledge possessed by the respondent mothers. in this research.

The data analysis carried out shows that the majority of subjects have good knowledge. However, there are also a number of subjects who have insufficient knowledge, especially regarding knowledge about birth attendants, hand washing habits, and the use of clean water. Although the relationship was not analyzed in this study, maternal educational background factors and maternal knowledge of PHBS could possibly be causal factors, this needs to be further proven [8].

Parenting includes the practice of feeding, maintaining cleanliness, and health of children [9]. Therefore, there is a need for more intensive educational and intervention efforts, especially for mothers with low levels of education, to increase their understanding of the importance of healthy and nutritious parenting practices for children under five.

Even though the majority of subjects showed good behavioral knowledge related to clean and healthy living behavior (PHBS), the results of statistical analysis did not show a significant relationship between maternal PHBS knowledge, attitudes and behavior and the nutritional status of toddlers. High p values ($p>0.05$) indicate that there is no significant correlation between these variables in the context of this study. Although

exclusive breastfeeding, regular weighing, and the use of clean water have a significant relationship to the condition of BW/AGE growth status in toddlers.

Researcher Research by Ummusalma (2019) also shows that there is no significant relationship between PHBS and nutritional status [10]. Other findings by Yuniar *et al*., (2020) also confirmed that there is no relationship between knowledge, attitudes and clean and healthy living behavior and health status [11].

Research by Sapitri *et al*., indicates that factors such as maternal education, housing conditions, access to health services, fertility, maternal age, and diet have a strong correlation with stunting nutritional status in children under five. The disconnect between clean and healthy living behavior (PHBS) and nutritional status may be due to the fact that PHBS is an indirect factor that influences nutritional status [12].

Will However, based on other research by Dewi *et al*., (2019), different results were obtained. This research confirms that clean and healthy living behavior (PHBS) has a significant relationship with the incidence of stunting. The variable that is in accordance with the research conducted by researchers is the significant relationship between exclusive breastfeeding and the use of clean water and stunting [13]. Poor and irregular exclusive breastfeeding increases the risk of children experiencing stunting by 4.78 times greater. This is because breast milk is a full nutritional intake which is very important for children and helps children's physical and mental growth and development. Children who do not receive breast milk will experience malnutrition and this can result in stunting [13]. Based on this research by Dewi *et al*., (2019), it is also explained that the use of clean water has a big influence on the incidence of stunting. Children born to families with poor use of clean water are 3 times more likely to experience stunting. This is because sanitation and clean water are the main components in preventing disease transmission [13].

Another thing that what influences *stunting* is nutritional intake. The nutritional problem that occurs in East Nusa Tenggara is very high and really requires intervention which can be done by providing innovative food that contains vitamins and minerals. Research conducted by Meko *et al*., in 2020 showed that giving Moringa leaf pudding had an influence on changes in the nutritional status of children at SD Inpres Noelbaki [14].

Similar research by Ekawati *et al*., (2021) in Malinau village, Kalimantan also shows that one of the factors that influences the nutritional status of toddlers is parents' knowledge in choosing and providing food, one example of which is exclusive breastfeeding [9]. Parents' knowledge has a significant impact on meeting their children's nutritional needs [15].

Clean and healthy living behavior (PHBS) is included in the category of direct causal factors, such as exclusive breastfeeding and balanced nutrition [10]. Indirect factors include health and delivery services supported by health workers, measuring the weight of toddlers, and guaranteed health care. Environmental sanitation includes aspects such as the presence of clean water, healthy latrine facilities, waste management, residential density level, type of house floor, smoking habits, and preventative measures against mosquito nests. Child care patterns include the practice of washing hands with soap and clean water and maintaining oral hygiene [10].

In its implementation, protein also greatly influences the nutrition of babies, so in research conducted by Lada Olly *et al*., in 2022, it shows that they conducted counseling to 2 cadres with the aim of providing an understanding of the importance of protein for toddlers [16].

Based on the analysis of categories of statements about the environment, healthy latrine facilities were owned by 98 subjects. The criteria for healthy latrines involve not desecrating the land (such as defecating in random places such as gardens, yards, near rivers, or roadsides) and not polluting the water (not throwing dirty water or feces into ditches, rivers, or ponds). A healthy latrine must also be free from insects and must have adequate lighting. A healthy latrine must not cause odors, must be safe to use, easy to clean, not disturb the user, and not give the impression of being impolite [10].

Knowledge about clean and healthy living behavior, namely birth assistance and routine weighing, is also not demonstrated in various studies. However, the importance of competent birth attendants is the education that will be provided regarding monitoring the child's health. This also makes regular weighing to monitor children's nutritional status very important to pay attention to [17]. In this study, no significant significance was shown regarding the incidence of malnutrition or very low body weight.

This research also indicates that other factors, apart from knowledge, attitudes and clean and healthy living behavior, may have a greater influence on the nutritional status of toddlers [17]. Therefore, it is recommended to conduct further research by considering other variables that might contribute to the nutritional status of toddlers.

CONCLUSION

Based on the results of data analysis tests carried out between knowledge of clean and healthy living behavior and children's nutritional status, it can be concluded as follows:

a. Based on the results of data analysis tests on the characteristics of the research sample based on

age and gender, there is a picture of the distribution of the most subjects with 1 year of age at 32%, in the sample the gender is male at 57%, while for the final education the subject's mother is from a high school/vocational school background. as much as 49% and mother's employment with the subject worker being housewife at 85%.

b. Based on the results of the analysis that has been carried out, it was found that respondents with poor knowledge of clean and healthy living behavior based on exclusive breastfeeding had a score of 19%, based on routine weighing at posyandu which was poor 4%, in the variable of poor delivery assistance 44% based on hand washing habits 37% are poor, 52% are based on poor use of clean water and 2% are based on habits based on poor use of toilets.

c. Based on the results of the analysis, it was found that the nutritional status of toddlers was deficient based on the weight index for age (BW/U) by 62%, the body weight according to height or length (BW/BL) was 23% less and according to the body mass index (BMI/AGE).) which is less for age by 28%.

d. Based on the results of data analysis that has been carried out to determine knowledge of clean and healthy living behavior, namely exclusive breastfeeding, childbirth, routine weighing, hand washing habits, and use of toilets, it was found that there is a significant relationship between knowledge of clean and healthy living behavior, namely giving Exclusive breastfeeding and use of clean water on the nutritional status of toddlers.

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